

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the Application. No new matter has been introduced by way of the claim amendments. Current additions to the claims are noted with underlined text. Current deletions from the claims are indicated by text ~~strikethrough~~ or [[double bracketing]]. The status of each claim is indicated in parenthetical expression following the claim number.

**WHAT IS CLAIMED IS:**

1. (Currently Amended) A method comprising the steps of:
  - a) providing a mixture comprising:
    - i) fluorinated carbon nanotubes;
    - ii) a quantity of metal hydroxide species; and
    - iii) a quantity of alcohol species, the alcohol species comprising at least two hydroxyl groups; and
  - b) reacting the mixture to yield functionalized carbon nanotubes with hydroxyl-terminated moieties attached to their sidewalls.
2. (Original) The method of claim 1, wherein the fluorinated carbon nanotubes are made by a process comprising contacting fluorine with carbon nanotubes selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes, buckytubes, fullerene tubes, tubular fullerenes, graphite fibrils, and combinations thereof.
3. (Original) The method of claim 1, wherein the fluorinated carbon nanotubes have a stoichiometry from about  $C_1F_{0.01}$  to about  $C_2F$ .
4. (Currently Amended) The method of claim 1, wherein the metal hydroxide species is selected from the group consisting of LiOH, NaOH, KOH, and combinations thereof.
5. (Currently Amended) The method of claim 1, wherein the alcohol species is of the general formula  $R(OH)_n$ , wherein n is at least two and R is an organic backbone.

6. (Currently Amended) The method of claim 5, wherein the metal hydroxide species and at least some of the alcohol species are reacted to form a mono-metal salt of the alcohol species,  $MOR(OH)_{n-1}$ .
7. (Original) The method of claim 1, further comprising a step of dispersing the fluorinated carbon nanotubes in a quantity of the alcohol species.
8. (Original) The method of claim 1, wherein the step of reacting involves heating.
9. (Original) The method of claim 1, wherein the step of reacting involves mixing.
10. (Original) The method of claim 1, wherein the step of reacting involves ultrasonication.
11. (Original) The method of claim 1, further comprising a step of filtering to collect a filtered product comprising the functionalized carbon nanotubes with hydroxyl-terminated moieties attached to their sidewalls.
12. (Original) The method of claim 11, further comprising washing and drying the filtered product.
13. (Original) A method comprising the steps of:
  - a) providing a mixture comprising:
    - i) fluorinated carbon nanotubes;
    - ii) a quantity of a metal salt of an alcohol species, the alcohol species comprising at least two hydroxyl groups, mixed with the fluorinated carbon nanotubes; and
  - b) reacting the mixture to yield functionalized carbon nanotubes with hydroxyl-terminated moieties attached to their sidewalls.
14. (Original) The method of claim 13, wherein the fluorinated carbon nanotubes are made by a process comprising contacting fluorine with carbon nanotubes selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes, buckytubes, fullerene tubes, tubular fullerenes, graphite fibrils, and combinations thereof.

15. (Original) The method of claim 13, wherein the fluorinated carbon nanotubes have a stoichiometry from about  $C_1F_{0.01}$  to about  $C_2F$ .
16. (Currently Amended) The method of claim 13, wherein the alcohol species is of the general formula  $R(OH)_n$ , wherein  $n$  is at least two and  $R$  is an organic backbone.
17. (Original) The method of claim 16, wherein the metal salt of the alcohol species is of the general formula  $MOR(OH)_{n-1}$ .
18. (Currently Amended) The method of claim 13, further comprising a step of dispersing the fluorinated carbon nanotubes in a quantity of the alcohol species.
19. (Currently Amended) Functionalized carbon nanotubes made by a process comprising the steps of:
  - a) providing a mixture comprising:
    - i) fluorinated carbon nanotubes, comprising fluorine moieties bonded to the carbon nanotubes;
    - ii) a quantity of a metal salt of an alcohol species, the alcohol species comprising at least two hydroxyl groups, mixed with the fluorinated carbon nanotubes; and
  - b) reacting the mixture to displace a portion of the fluorine moieties to yield functionalized carbon nanotubes;  
wherein the functionalized carbon nanotubes comprise with hydroxyl-terminated moieties attached to their sidewalls and residual fluorine moieties.
20. (Original) The functionalized carbon nanotubes of claim 19, wherein the fluorinated carbon nanotubes are made by a process comprising contacting fluorine with carbon nanotubes selected from the group consisting of single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes, buckytubes, fullerene tubes, tubular fullerenes, graphite fibrils, and combinations thereof.
21. (Original) The functionalized carbon nanotubes of claim 19, wherein the fluorinated carbon nanotubes have a stoichiometry from about  $C_1F_{0.01}$  to about  $C_2F$ .

22. (Currently Amended) The functionalized carbon nanotubes of claim 19, wherein the alcohol species is of the general formula  $R(OH)_n$ , wherein  $n$  is at least two and  $R$  is an organic backbone.
23. (Original) The functionalized carbon nanotubes of claim 22, wherein the alcohol species is bis-phenol A.
24. (Original) The functionalized carbon nanotubes of claim 22, wherein the metal salt of the alcohol species is of the general formula  $MOR(OH)_{n-1}$ .
25. (Original) The functionalized carbon nanotubes of claim 19, further comprising a step of dispersing the fluorinated carbon nanotubes in a quantity of the alcohol species.
26. (Currently Amended) The functionalized carbon nanotubes of claim 19, wherein the functionalized carbon nanotubes have ~~ing~~ a general formula  $CNT-[OR(OH)_m]_x$ , wherein  $R$  is an organic backbone,  $m$  is at least one, and  $x$  is ~~from~~ about 1 to about 500 per 1,000 nanotube carbon atoms.
27. (Original) The functionalized carbon nanotubes of claim 19, wherein the functionalized carbon nanotubes are additionally functionalized on their ends.
28. (Original) The functionalized carbon nanotubes of claim 23, further comprising a step of reacting the functionalized carbon nanotubes with epichlorohydrin to form carbon nanotubes functionalized on their sidewalls with epoxide-terminated moieties.
29. (Currently Amended) Functionalized carbon nanotubes comprising:
  - a) a plurality of carbon nanotubes having functional groups attached to the sidewalls of the carbon nanotubes, wherein:
    - i<sup>a</sup>) the functional groups are of the form  $--OR(OH)_m$ ;
    - i<sup>b</sup>)  $R$  is an organic backbone; and
    - i<sup>c</sup>)  $m$  is at least one; and[.]
  - b) a quantity of fluorine moieties bonded to the carbon nanotubes.
30. (Currently Amended) The functionalized carbon nanotubes of claim 29, wherein there are ~~from~~ about 1 to about 500 functional groups attached to the sidewalls of the carbon

nanotubes per 1,000 nanotube carbon atoms.

31. (Original) The functionalized carbon nanotubes of claim 29, wherein the functionalized carbon nanotubes are additionally functionalized on their ends with the functional groups.
32. (Original) Functionalized carbon nanotubes comprising a plurality of carbon nanotubes having functional groups comprising epoxide moieties attached to the sidewalls of the carbon nanotubes, wherein:
  - a) the functional groups are of the form  $\text{---OR---C(H)---CH}_2$ ; and
  - b) R is an organic backbone.
33. (Currently Amended) The functionalized carbon nanotubes of claim 32, wherein there are ~~from~~ about 1 to about 500 functional groups attached to the sidewalls of the carbon nanotubes per 1,000 nanotube carbon atoms.
34. (New) The functionalized carbon nanotubes of claim 19, further comprising a step of reacting the functionalized carbon nanotubes with epichlorohydrin to form carbon nanotubes functionalized on their sidewalls with epoxide groups.
35. (New) The functionalized carbon nanotubes of claim 19, wherein an amount of the residual fluorine moieties is about 3 to about 5 atomic percent.
36. (New) The functionalized carbon nanotubes of claim 29, wherein an amount of the residual fluorine moieties is about 3 to about 5 atomic percent.